

REMARKS

In an Office Action dated 18 May 2005, the Examiner rejected claims 1 – 3, 14 – 16, and 27 – 29 under 35 USC §102(e) as being anticipated by US Patent No. 6,735,438 issued to Sabatino (hereinafter the "Sabatino Patent"); claims 4 – 10, 12, 17 – 19, and 30 – 36 under 35 USC §103(a) as being unpatentable over the Sabatino Patent in view of US Patent No. 6,314,286 issued to Zicker (hereinafter the "Zicker Patent"); and claims 13, 26, and 39 under 35 USC §103(a) as being unpatentable over the Sabatino Patent in view of the Zicker Patent and further in view of US Patent No. 6,760,778 issued to Nelson et al. (hereinafter the "Nelson Patent"). The Examiner also objected to claims 11, 24, and 37 as being dependent upon a rejected base claim, but these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 20 – 23, 25, and 38 were not addressed in the Office Action. Applicant has amended claims 1, 8, 10, 11, 14, 21, 23, 27, 34, 36, and 37 and added new claims 40 – 78 to specify additional structure not previously claimed. The new claims do not add new matter to the application but simply address aspects that have been described but not specifically claimed.

Claim Rejections – 35 USC §102

The Examiner rejected claims 1 – 3, 14 – 16, and 27 – 29 under 35 USC §102(e) as being anticipated by US Patent No. 6,735,438 issued to Sabatino, noting with respect thereto:

Consider claims 1, 14-16 and 27-29, Sabatino teaches a system/method for providing wireless communication services to a plurality of wireless subscriber devices that are located in an aircraft (Abstract, C4, L32-49 teach wireless communication in the aircraft), comprising: aircraft network means for generating radio frequency communication signals to communicate with at least one of said plurality of wireless subscriber devices (C4, L44-49, Fig. 4, illustrate communication between aircraft and wireless communication devices means as No. 26); air-to-ground network means for radio frequency communications between said aircraft and a ground-based communications system having at least one transceiver located on the ground (Fig. 4, No. 10, No. 40 illustrate as transceiver located on the ground); and aircraft interface means for interconnecting said aircraft network means and said air-to-ground network means to establish communications between said plurality of wireless subscriber devices and said ground-based communications network

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(C6, L35-67, C7, L1-10, Fig. 5, No. 60, No. 70 means as ground-based communications network).

Applicant has reviewed the cited Sabatino Patent, the Examiner's clearly stated grounds for rejection, amended independent claims 1, 14, and 27 to provide additional clarity of description, and also presents the following arguments in support of patentability.

The Sabatino Patent is directed to an air base station antenna system 10 that serves to transmit cellular signals between the wireless telephones (not shown) located on an aircraft 30 and an air base station 70. The focus of the description of the Sabatino Patent is the implementation of the air base station antenna system 10 and the radiation patterns that are created by the air base station antenna system 10. The Sabatino Patent provides absolutely no disclosure of the wireless telephones located on the aircraft or any apparatus located in the aircraft that creates radio frequency communications with the wireless telephones located on the aircraft. In fact, it appears (as best can be determined given the dearth of description in the Sabatino Patent) that the wireless telephones located in the aircraft each individually communicate with the air base station 70 located on the ground via the air base station antenna system 10, which is also located on the ground. In fact, the Sabatino Patent fails to even hint at the presence of any apparatus located in the aircraft (other than the subscriber's wireless telephone) that is used to support an air-to-ground radio frequency.

The Examiner, in support of the rejection of claims 1 – 3, 14 – 16, and 27 – 29 under 35 USC §102(e), cited the Sabatino Patent, Column 4, lines 32 – 49 as evidence of the disclosure that anticipates Applicant's claimed aircraft network means. This cited disclosure reads as follows:

It would also be desirable to provide an air-to-ground communication system in which compliance with mobile system interference specifications is promoted.

It would additionally be desirable to provide an air-to-ground communication system in which a region's air-to-ground base station antennas have radiation patterns that conform to typical flight paths or corridors for the region's airspace. An air corridor may, for example, be a common flight path taken by aircraft.

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It would further be desirable to provide interference isolation between a ground-based mobile system and an air-to-ground mobile system.

It would also be desirable to provide wireless communication service to an aircraft's passengers, based on a conventional ground telecommunications standard so that the passengers could use their personal mobile units both on the ground and on an aircraft above the ground.

However, the "wish list" contained in the Sabatino Patent does not rise to the standard required for an adequate disclosure to anticipate Applicant's claimed aircraft network means. The Examiner's attention is directed to the well known requirements in case law: "To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter." *PPG Industries, Inc. v. Guardian Industrial Corp.*, 75 F.3d 1558, 1566, 37 USPQ2d 1618, 1624. The failure of the Sabatino Patent to even hint at Applicant's claimed "aircraft network means located in said aircraft for generating radio frequency communication signals to communicate with at least one of said plurality of wireless subscriber devices that are located in said aircraft" (emphasis added) supports Applicant's position that the Examiner has failed to make a sustainable rejection of Applicant's independent claims 1, 14, and 27 under 35 USC §102(e). In fact, the Sabatino Patent is devoid of even a hint at any apparatus located in the aircraft "for generating radio frequency communication signals to communicate with at least one of said plurality of wireless subscriber devices that are located in said aircraft" as is specifically recited in Applicant's independent claims 1, 14, and 27. The fact that the Sabatino Patent fails to address the implementation of any radio frequency apparatus on the aircraft, or even show the wireless station in the aircraft, is proof that the Sabatino Patent fails to anticipate Applicant's claimed "aircraft network means located in said aircraft for generating radio frequency communication signals to communicate with at least one of said plurality of wireless subscriber devices that are located in said aircraft."

The Examiner further cited the Sabatino Patent Column 6, line 35 to Column 7, line 10 as evidence of the disclosure that anticipates Applicant's claimed aircraft interface means:

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Air-to-Ground Communication System

FIG. 4 illustrates an exemplary system 100 for providing a wireless communication service. The system 100 includes an air base station antenna 10 and an aircraft 30, which may communicate over a first air interface 20. In the preferred embodiment, the air base station antenna 10 is co-located with a ground base station antenna 40 forming an air overlay and a ground underlay network. The air base station antenna 10 and the ground base station antenna 40 are mounted on the same pole 54 in one embodiment. The base station antenna 10 may be mounted on a pole 54, building, or other suitable mounting point either separately from or with the ground base station antenna 40. Alternatively, the base station antenna 10 may be mounted on the ground, given that the signal is radiating from the ground skyward.

A mobile user 26 is linked to the ground base station 40 over air interface 24. The system 100 provides wireless communication using a conventional ground system air-interface standard (e.g. IS-95A/B, IS-136, G3, CDMA2000 etc.). By using an air interface 20 standard compatible with a conventional ground system air interface 24, a passenger may use a mobile telephone 26 on an aircraft 30. Aircraft 30 may be an airplane or any other entity capable of flying (e.g. a helicopter, satellite, jet, blimp, glider, etc.).

FIG. 5 illustrates a system for providing wireless communication between a base station antenna 10 and an aircraft 30 according to a preferred embodiment of the present invention. An air base station antenna 10 is linked to an aircraft 30 over an air interface 20. A transmitted signal over the air interface 20 may be either horizontally or vertically polarized. Air base station antenna 10 is coupled to air BTS (Base Transceiver Station) 70 via transmission line feed 50. Ground base station antenna 40 is coupled to ground BTS 60 via transmission line feed 52. The air base station antenna 10 may, for example, be dome-shaped. Alternatively, the air base station antenna 10 may be a vertical-type antenna with a 360 degree radius of operation, or a directional antenna (which has less than a 360 degree radius of operation in the horizontal plane). The air base station antenna 10 may still take other forms as well. Ground base station antenna 40 may be co-located with air base station antenna 10 according to one embodiment of the invention.

However, as noted above, this excerpt from the Sabatino Patent fails to support a valid rejection of Applicant's independent claims 1, 14, and 27 under 35 USC §102(e) since the Sabatino Patent is devoid of even a hint at any apparatus located in the aircraft "for

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generating radio frequency communication signals to communicate with at least one of said plurality of wireless subscriber devices that are located in said aircraft" as is specifically recited in Applicant's independent claims 1, 14, and 27 as part of Applicant's claimed "aircraft network means." Therefore, the Sabatino Patent certainly does not anticipate Applicant's claimed "aircraft interface means for interconnecting said aircraft network means and said air-to-ground network means to establish communications between said plurality of wireless subscriber devices and said ground-based communications network by exchanging both subscriber traffic and at least one of network signaling and administrative data on separate concurrently available logical channels between said aircraft network means and said ground-based communications network", since the Sabatino Patent is devoid of even a hint of any apparatus that can be used "for interconnecting said aircraft network means and said air-to-ground network means", since there is no disclosure of an aircraft network means in the Sabatino Patent.

Therefore, Applicant believes that Applicant's system for providing wireless communication services to a plurality of wireless subscriber devices that are located in an aircraft, as claimed in independent claim 1:

A system for providing wireless communication services to a plurality of wireless subscriber devices that are located in an aircraft, comprising:
aircraft network means located in said aircraft for generating radio frequency communication signals to communicate with at least one of said plurality of wireless subscriber devices that are located in said aircraft;
air-to-ground network means for radio frequency communications between said aircraft and a ground-based communications network having at least one transceiver located on the ground; and
aircraft interface means for interconnecting said aircraft network means and said air-to-ground network means to establish communications between said plurality of wireless subscriber devices and said ground-based communications network by concurrently exchanging both subscriber traffic and at least one of network signaling and administrative data on separate concurrently available logical channels between said aircraft network means and said ground-based communications network.

is allowable under 35 USC §102(e) over the cited Sabatino Patent. Applicant also believes that independent claims 14 and 27, since they are similar in content to independent claim 1, are also allowable under 35 USC §102(e) over the cited Sabatino Patent for the reasons

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noted with respect to claim 1. Applicant also believes that dependent claims 2 – 13, 15 – 26, and 28 – 39 are allowable, since they depend on allowable base claims. Furthermore, Applicant believes that newly added dependent claims 43 – 78 are allowable, since they depend on allowable base claims.

Claim Rejections – 35 USC §103 .

The Examiner rejected claims 4 – 10, 12, 17 – 19, and 30 – 36 under 35 USC §103(a) as being unpatentable over the Sabatino Patent in view of US Patent No. 6,314,286 issued to Zicker (hereinafter the "Zicker Patent"), and claims 13, 26, and 39 under 35 USC §103(a) as being unpatentable over the Sabatino Patent in view of the Zicker Patent and further in view of US Patent No. 6,760,778 issued to Nelson et al. (herein after the "Nelson Patent"). These references not only fail to show or suggest the underlying concepts of Applicant's independent claims, but also do not show or suggest what is recited in Applicant's dependent claims. Rather than addressing every dependent claim in detail, Applicant describes the fundamental limitations of these references to thereby place these references in the proper context.

The Zicker Patent teaches a system for providing voice communication services to subscriber-provided radiotelephones (50) that reside in an aircraft (20). This system uses a plurality of enhanced cordless base stations (40), one for each of the subscriber-provided radiotelephones (50) that request service, to provide the voice communications capability. Two of the enhanced cordless base stations (52, 56) are used to distribute pilot signals to the subscriber-provided radiotelephones (50). The controller (44) coordinates the selection of a base station (40) for an active subscriber-provided radiotelephone (50) and forwards the radio frequency signals received from the active subscriber-provided radiotelephones (50) to the ground station (36) via the air-to-ground communication system (48).

The two communication systems that are used to implement the system of the Zicker Patent are AMPS for the in-cabin cellular communications and the Airfone system for the air-to-ground communications. The architecture of each of these systems has distinct and wholly separable control channels and voice traffic channels, both logical as well as RF channels. For example, in the analog AMPS system as described by the Zicker

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Patent, the subscriber handset can only access a single frequency at any given time, either the control channel or the voice traffic channel. When the subscriber handset is idle (no call present), the subscriber handset listens to the forward control channel for control signals from the base station. When a call is established, the subscriber handset is no longer capable of communicating on the control channel, and the subscriber handset operates exclusively on the assigned voice traffic channel (frequency), which is used to transmit the analog voice signals to the base station. Therefore, when an analog voice call is up in the system of the Zicker Patent, the ONLY control signaling path between the subscriber handset and the base station is in-band over the analog voice traffic channel. For example, on the forward voice traffic path, when a voice call is up, the subscriber handset receives dynamic power control commands from the base station through a blank and burst scheme where the audio on the reverse voice traffic path is muted and the power step signal is sent to the subscriber handset in place of the audio signal. In analog AMPS, there are no separate "logical" signaling channels that are concurrently available with the voice traffic channel. In analog AMPS, ad hoc control information is conveyed, not as a separate, concurrently available logical channel, but rather as an "interrupt" type of device control. In the world of telecommunications, this is a critical distinction.

In contrast, all the digital cellular platforms supported by Applicant's system have out-of-band signaling paths while subscriber traffic is carried in-band. This signaling is carried out-of-band as a logical channel though time domain or code domain logical separation (GSM could also have frequency separation). In CDMA, for example, subscriber traffic is carried using one Walsh code word while signaling information is sent using other, separate and orthogonal code words. For example, the Broadcast Channel in CDMA 2000 is a code channel in a forward path CDMA channel used for transmission of control and pages from a base station to a mobile; the Forward Pilot Channel is transmitted by each CDMA base station to allow a mobile to acquire the timing of the Forward CDMA channel (as well as a phase reference for coherent demodulation and signal strength comparisons between base stations). Thus, the AMPS and Airfone aircraft communication system of the Zicker Patent fails to exchange both subscriber traffic and at least one of

network signaling and administrative data on separate, concurrently available logical channels between the aircraft network and the ground-based communications network.

The Nelson Patent teaches a system for enhancing the current data communication capabilities of the North American Terrestrial System (NATS) Network. An Airborne Data Server (ADS) is added to the airborne architecture of the current NATS Network and a Ground Data Gateway (GDG) is added to the ground-based architecture of the current NATS Network. The ADS functions as a router/gateway connected to the local area networks (LANs) aboard the aircraft. The ADS provides for the automation of data services such as scheduling, routing, and translation. The GDG is the central hub for the network and dispatcher of data to customer premises or to the aircraft.

As noted above, the cited Sabatino Patent fails to show or suggest Applicant's system for providing wireless communication services to a plurality of wireless subscriber devices that are located in an aircraft as claimed in independent claims 1, 14, and 27; for example: "aircraft interface means for interconnecting said aircraft network means and said air-to-ground network means to establish communications between said plurality of wireless subscriber devices and said ground-based communications network by concurrently exchanging both subscriber traffic and at least one of network signaling and administrative data on separate concurrently available logical channels between said aircraft network means and said ground-based communications network". Therefore, Applicant believes that dependent claims 4 – 13, 17 – 26, and 30 – 39 are allowable over the cited Sabatino Patent, individually as well as in view of the cited Zicker Patent and/or the cited Nelson Patent, since these claims depend on allowable base claims. In addition, none of these cited references show or suggest Applicant's invention as recited in the independent claims, as noted above. In addition, the cited Zicker and Nelson Patents fail to show or suggest this capability, "aircraft interface means for interconnecting said aircraft network means and said air-to-ground network means to establish communications between said plurality of wireless subscriber devices and said ground-based communications network by concurrently exchanging both subscriber traffic and at least one of network signaling and administrative data on separate concurrently available logical

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channels between said aircraft network means and said ground-based communications network", either individually or in combination with the cited Sabatino Patent.

Objection To Claims 11, 24, and 37

Claims 11, 24, and 37 have been objected to as being dependent upon a rejected base claim. Applicant has taken the recitations of claims 11, 24, and 37 to include the limitations of the base claims on which they depend and the intervening claims and presents these claims as newly added claims 40 - 42. Therefore, claims 40 - 42 are believed allowable.

Summary

Applicant respectfully requests a Notice of Allowance of claims 1 - 78 in this application in light of the remarks set forth herein. The undersigned attorney requests Examiner Doan to telephone if a conversation could expedite the prosecution of this application. A Fee Transmittal is attached to show payment for additional total claims and additional independent claims. Applicant authorizes the Commissioner to charge any additional fees to Deposit Account No. 50-1848.

Respectfully submitted,
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